OIL SUPPLY APPARATUS FOR HERMATIC COMPRESSOR(CN1386980A)

Description

[FIELD OF THE INVENTION]
The present invention relates to an oil supply apparatus for a hermetic compressor, and more particularly, to an oil supply apparatus for a hermetic compressor that is capable of increasing oil supply quantity and increasing a lubricating performance of oil.

Description of the Background Art
Generally, a hermetic compressor as an apparatus for supplying compressed fluid is mainly applied to a cooling system such as a refrigerator, an air conditioner, or the like.

FIG. 1 illustrates a cross-sectional view of a hermetic compressor according to the prior art.

Referring to FIG. 1, a hermetic compressor in the prior art comprises the following components: a hermetic casing 1 providing a hermetic space inside; a motor 3 installed inside the hermetic casing 1 so as to provide a driving power; a compression unit 30 carrying out a compression of a fluid by dint of the driving power of the motor 3; and an oil supply apparatus 20 supplying an inside of the hermetic casing 1 with an oil so as to perform lubrication and cooling.

The motor 3 comprises a stator 4 wound with a magnetization coil and a rotor 5 made of a permanent magnet, thereby generating a turning force by a reciprocal electromagnetic reaction between the stator 4 and rotor 5.

The compression unit 30 comprises a crankshaft 7 connected and driven to rotate by the motor 3 and having an eccentric part at its upper part; a connecting rod 8 transferring a turning force generated from a rotation of the crankshaft 7; a piston 9 connected to the connecting rod 8 to reciprocate so as to carry out a compression of a fluid; a cylinder 6 having the piston 9 reciprocate inside and providing a compression room for compressing the fluid; and a valve assembly 10 arranged at a front side of the cylinder 6 so as to open/close the compressed fluid.

The oil supply apparatus 20 comprises: an oil flow path 12 formed inside the crankshaft 7 in a length direction so as to supply sliding and frictional parts inside the compressor with the oil; a sleeve 11 coupled with a lower part of the crankshaft 7 so as to rotate together with the crankshaft 7; a sucking member 13 arranged so as to maintain a predetermined gap with an inner circumference face of the sleeve 11 and

sucking the oil through the gap when the sleeve 11 rotates so as to supply the oil flow path 12 with the sucked oil; and a support bracket 14 supporting a state that the sucking member 13 is inserted in the inner circumference face of the sleeve 11.

The sucking member 13, of which lower part is supported by the support bracket 14, is arranged so as to maintain a predetermined gap with an outer circumference face of the sleeve 11 as well as stop relatively inside the sleeve 11 rotation together with the crankshaft 7. And, a spiral oil flow path is formed at an outer circumference face of the sucking member 13 so as to suck the oil along the spiral oil flow path when the sleeve 11 rotates.

The bracket 14 has a predetermined resiliency. A central part of the bracket 14 is fixed to the lower part of the sucking member 13 so as to support the sucking member 13 not to rotate. And, both extending parts of the bracket 14 from the central part are fixed to the lower part of the stator 4.

Operation of the above-constructed oil supply apparatus for the hermetic compressor is explained as follows.

First, once the motor 3 rotates, the crankshaft 7 rotates to transfer a dynamic power to the compression unit 30 so as to compress the fluid.

When the crankshaft 7 rotates by the rotation of the motor 3, the sleeve 11 rotates while the sucking member 13 supported by the bracket 14 maintains a static state inside the sleeve 11. Hence, the oil is sucked in along the spiral oil flow path at the outer circumference face of the sucking member 13 by the relative rotation of the sleeve 11 for the sucking member 13.

The oil having sucked in through the sucking member 13 is carried to an upper part through the oil flow path 12 of the crankshaft 7 as well as sliding and exothermic parts of the hermetic casing 1 so as to carry out lubrication and heat dissipation.

Even if the state that the sucking member 13 is fixed to the bracket in the above-constructed hermetic compressor according to the prior art, the sleeve 11 rotates together with the crankshaft 7. When a vibration occurs in driving the compressor, the sucking member 13 is fixed but the sleeve 11 shakes due to the vibration of the compressor. Hence, it is difficult to maintain precisely the gap between the outer circumference face of the sucking member 13 and the inner face of the sleeve 11, whereby the suction power of the oil is reduced. Thus, it is impossible to sufficiently supply the frictional and sliding parts in the compressor fail with oil. Hence, abrasion and damage are caused on the frictional and sliding parts so as to degrade a performance of the hermetic compressor.

Moreover, in the assembly process, the bracket 14 supports the lower part of the

sucking member 13 having been inserted in the sleeve 11, and then both ends of the support bracket 14 should be fixed to the stator 5. Therefore, the assembly process becomes more complicated.

[SUMMARY OF THE INVENTION]

Accordingly, it is an object of the present invention to provide an oil supply apparatus for a hermetic compressor that substantially obviates one or more problems due to limitations and disadvantages of the prior art.

One of objects of the present invention is to provide an oil supply apparatus for a hermetic compressor enabling increase of an oil supply performance by maintaining a uniform gap between a sucking member and a sleeve in a manner that amplitudes of the sucking member and sleeve are kept equal to each other by having the sucking member of the compressor supported by the sleeve when the hermetic compressor generates vibration.

A part of other advantages, objects and features of the present invention will be described hereinafter, while the other part thereof may be understood by a person skilled in the art by means of reading the following description, or carrying out the present invention. These objects and other advantages of the present invention may be achievable and attainable in accordance with the structure particularly set forth in the present description, as well as in the claims and the drawings.

To achieve these objects and other advantages and in accordance with the present invention, as embodied and broadly described herein, an oil supply apparatus for a hermetic compressor according to the present invention comprises: a crankshaft coupled with a motor so as to revolve together and having an oil flow path inside; a sleeve connected to a lower part of the crankshaft so as to revolve together with the crankshaft integrally; a sucking member arranged to maintain a uniform space with an inner circumference face of the sleeve so as to carry out a suction of an oil; and a support means, which is used for supporting the sucking member to slide, connected between the sleeve and sucking member so as to maintain a stationary state.

Preferably, the oil supply apparatus further comprises an anti-rotating member installed at a lower part of the sucking member so as to avoid rotation of the sucking member by a generated resistance force due to high viscosity of lubricating oil.

Preferably, the sleeve is cylindrical so that an upper outer circumference face of the sleeve is pushed in and fixed to a lower side of the crankshaft.

Preferably, the sucking member is arranged inside the sleeve so as to leave a uniform space from each other, and a spiral oil flow path is formed at an outer circumference face of the sucking member so as to suck in the lubricating oil, as well as a through

hole is formed in a length direction of the sucking member.

Preferably, the support means comprises: a suspending member connected to both sides of up upper portion of the sleeve in a radial direction; a connecting member downward vertically connected to a center of the suspending member; and a sliding portion between the connecting and sucking members so as support sliding of the sucking member.

It is advisable that the sliding portion comprises a hinge ball built in one body with an end of the connecting means and a spherical recess at the through hole of the sucking member so that the hinge ball is slidable after it is mounted in.

It is advisable that the suspending member exhibits a bar shape having a predetermined length and both ends of the suspending member are fixed to fixing recesses through an upper end of the sleeve.

It is advisable that the anti-rotating member comprises a cylindrical fixed part inserted into the through hole of the sucking member so as to be fixed and a plurality of blades in an inner circumferential direction of the fixed part so as to generate a resistance force against a viscosity of the oil fully filling a lower side of a body of the oil supply apparatus.

It is advisable that both ends of the suspending member which are fit in fixing recesses at both sides of the upper portion of the sleeve as well as a middle portion of the suspending member are bent so that a connecting position of the connecting member is precisely maintainable.

It is advisable that the suspending member obliquely extends from a middle portion to both ends and is made of a resilient material having a predetermined resiliency exerting in a stretching-out direction on both of the ends of the suspending member.

It should be understood that both the foregoing general description and the following detailed description of the present invention are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated to provide a further understanding of the invention and constitute a part of this application, illustrate embodiment(s) of the invention and together with the description serve to explain the principle of the invention. In the drawings:

FIG. 1 illustrates a cross-sectional view of a hermetic compressor according to a prior art;

FIG. 2 illustrates a cross-sectional view of a hermetic compressor according to an embodiment of the present invention;

FIG. 3 illustrates a partially magnified view of an oil supply apparatus in FIG. 2;

FIG. 4 illustrates a cross-sectional view of an oil supply apparatus for a hermetic compressor according to another embodiment of the present invention;

FIG. 5 illustrates a disassembled top view of a suspending member and a sleeve in FIG. 4;

FIG. 6 illustrates a cross-sectional view of an oil supply apparatus for a hermetic compressor according to a further embodiment of the present invention; and

FIG. 7 illustrates a disassembled top view of a suspending member and a sleeve in FIG. 6.

DETAILED DESCRIPTION OF THE INVENTION

Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings.

FIG. 2 illustrates a cross-sectional view of a hermetic compressor according to an embodiment of the present invention and FIG. 3 illustrates a partially magnified view of an oil supply apparatus in FIG. 2.

Referring to FIG. 2 and FIG. 3, a hermetic compressor according to the present invention comprises a hermetic casing 101 providing a hermetic space inside; a motor 103 installed inside the hermetic casing 101 so as to provide a driving power; a compression unit 130 carrying out a compression of a fluid by the driving power of the motor 103; and a oil supply apparatus 120 supplying an inside of the hermetic casing 101 with an oil so as to perform lubrication and cooling.

The motor 103 comprises a stator 104 wound with a magnetization coil and a rotor 105 made of a permanent magnet, thereby generating a turning force by an electromagnetic reciprocal reaction between the stator 104 and rotor 105 when an electric power is applied to the stator 104.

The compression unit 130 comprises: a crankshaft 107 connected to the rotor 105 of the motor 103 to rotate and having an eccentric part 107c at an upper part, an eccentric pin 107b formed at the eccentric part 107c of the crankshaft 107; a connecting rod 108 connected to the eccentric pin 107b so as to transfer a turning force of the crankshaft 107; a piston 109 connected to the connecting rod 108 to

reciprocate so as to carry out a compression of the fluid; a cylinder 106 having the piston 109 reciprocate inside and providing a compression room; and a valve assembly 110 installed at a front side of the cylinder 106 so as to open/close the compressed fluid.

The oil supply apparatus 120 comprises: a sleeve 111 coupled with a lower part of the crankshaft 107 so as to revolve together with the crankshaft 107; an oil flow path 112 formed inside the crankshaft 107; a sucking member 140 arranged in the sleeve 111 so as to maintain a uniform gap with an inner circumference face of the sleeve 111 and sucking the oil by a reciprocal operation with the sleeve 111; and a support means 150 connected between the sleeve 111 and sucking member 140 so as to support the sucking member 140 so as to let the sucking member 140 slide; and an anti-rotating member 150 installed at a lower side of the sucking member 140 to generated a resistance force from a viscosity of the lubricating oil so as to avoid rotation of the sucking member 140.

The sleeve 111 is cylindrical and connected to the lower part of the crankshaft 107 to revolve together. An end portion of the sleeve 111 is dipped in the oil fully filling the lower part of the hermetic casing 101.

The sucking member 140 is arranged at an inner circumference face of the sleeve 111 so as to maintain a uniform gap with the sleeve 111. A spiral oil flow path 142 is formed at an outer circumference face of the sucking member 140 so as to provide a suction force sucking the oil in an upper direction when the sleeve 111 revolves. And, a through hole 141 is formed so as to pass through an upper part of the sucking member 140 in a length direction.

The support means 150 comprises a suspending member 122 connected to an upper side of the sleeve 111 in a radial direction, a connecting member 132 connected to a center of the suspending member 122 in a vertical direction, and a sliding portion formed between the connecting and sucking members 132 and 140 so as to support the sucking member 140 enabling to slide.

The sliding portion comprises a hinge ball 133 built in one body with an end of the connecting member 122 and a spherical recess 143 at an entrance of the through hole 141 of the sucking member 140 so that the hinge ball 133 is slidable after fit in.

The suspending member 122 is shaped like a bar so that both ends are connected to the upper end of the sleeve 111. The connecting member 132 is fixed to a center of the suspending member 122 so that the hinge ball 133 enables to rotate with the same of a revolving center of the sleeve 111. The suspending member 122 is fixed to the fixing recess 123 through the upper end of the sleeve 111.

The connecting member 132 passes an upper center of the sucking member 140 so as

to be connected to the suspending member 122 vertically in an outer length direction of the sucking member 140, and is connected to the hinge ball 133 arranged inside the sucking member 140 in an inner length direction of the sucking member 140.

A contact face between the hinge ball 133 and the spherical recess 143 is preferably processed as smooth so that the hinge ball 133 enables to slide smoothly on the spherical recess 143.

The anti-rotating member 145 comprises a fixed part 146 fitting in the through hole 141 of the sucking member 140 so as to be fixed thereto and a plurality of blades 147 in an inner circumferential direction of the fixed part 146 so as to generate a resistance by the viscosity of the oil filling the lower part of the body. Preferably, the blades 147 formed in a direction opposite to the revolving direction of the sleeve 111 so as to increase the resistance force against the oil. Operation of the above-constructed hermetic compressor according an embodiment of to the present invention is explained as follows.

Referring to FIG. 2 to FIG. 3, once the motor 103 is actuated, the crankshaft 107 connected to the motor 103 starts to revolve. And, the turning force of the crankshaft 107 is transferred to the connecting rod 108 through the eccentric pin 107b. The power transferred to the connecting rod 108 reciprocates the piston 109 inside the cylinder 106.

Therefore, the operation of the piston 109 compresses to blow the fluid flowing in the cylinder 106 externally.

And, the turning force of the crankshaft 107 is transferred to drive to the oil supply apparatus 120 so as to carry out the lubrication of the sliding and frictional parts inside the compressor.

Specifically, once the crankshaft 107 revolves by the rotation of the motor 103, the sleeve 111 coupled with the crankshaft 107 rotates as well so as to revolve connecting member 132 through the suspending member 122 fixed to the sleeve 111.

Moreover, the hinge ball 133 built in one body with the lower part of the connecting member 132 rotates by the revolution of the connecting member 132.

In this case, the anti-rotating member 145 connected to the lower end of the sucking member 140 generates the resistance force against the oil so as to prohibit the sucking member 140 from revolving together with sleeve 111 to some extent.

And, the hinge ball 111 slides on the spherical recess 143 of the sucking member 140 by the resistance force of the anti-rotating member 145 and the turning force of the sleeve 111.

Therefore, the sucking member 140 maintains a holding state inside the sleeve111, and the oil inside the hermetic casing 101 is sucked in along the spiral oil flow path 142 at the outer circumference face of the sucking member 140 by the relative revolution of the sleeve 111 against the sucking member 140.

Thereafter, the oil sucked in through the sucking member 140 is carried to the upper part through the oil flow path 112 so as to be transferred to the sliding portion inside the hermetic casing 101, thereby carrying out the lubrication.

Moreover, as the sucking member 140 is supported by the support means 150 connected to the center of the suspending member so as to be located at an inner center of the sleeve 111, the gap between the outer circumference face of the sucking member 140 and the inner circumference face of the sleeve 111 can be maintained uniformly.

FIG. 4 illustrates a cross-sectional view of an oil supply apparatus for a hermetic compressor according to another embodiment of the present invention, and FIG. 5 illustrates a disassembled top view of a suspending member and a sleeve in FIG. 4.

Referring to FIG. 4 and FIG. 5, a support means 250 of an oil supply apparatus for a hermetic compressor according to another embodiment of the present invention comprises a suspending member 222 connected to an upper part of a sleeve 211 in a radial direction, a connecting member 232 connected to a center of the connecting member 222 in a vertical direction, and a sliding portion formed between the connecting member 232 and a sucking member 240 so that the supported sucking member 240 is slidable.

The sliding portion comprises a hinge ball 233 built in one body with an end of the connecting member 222 and a spherical recess 243 formed at top face of a through hole 241 of the sucking member 240 so that the hinge ball 233 is slidable after fit in.

The suspending member 222 is shaped like a bar so that both ends of the suspending member 222 are connected to an upper end of the sleeve 211. And, the connecting member 232 is connected to a center of the suspending member 222 so as to be hung in a vertical direction. Therefore, the hinge ball 233 enables to rotate with the same concentricity of the revolving center of the sleeve 211.

Both ends of the suspending member 222 are inserted into fixing ends 223 formed at the sleeve 211 so as to be fixed.

In order to couple the connecting member 232 with the center of the suspending member 222, the suspending member 222 extends from both ends in a horizontal direction to predetermined lengths so as to be bent downward in a middle portion. In

the middle portion of the suspending member 222, a horizontal portion is formed to a predetermined length so as to be coupled with the connecting member 232.

Therefore, a hanging position of the connecting member 232 is restricted so that the connecting member 232 can not move on the suspending member 222.

The connecting member 232 has a hook shape so as to be hung on the suspending member 222 in an outer length direction of the sucking member 240 by passing through an upper center of the sucking member 240. And, the connecting member 232 is connected as one body to the hinge ball 223 installed inside the sucking member 240 in an inner length direction of the sucking member 240.

Explanation for the same components of the previous embodiment of the present invention is skipped in this description.

Operation and effect of the above-explained oil supply apparatus for the hermetic compressor according to another embodiment of the present invention are as follows.

The connecting member 232 is hung on the middle portion of the suspending member 222 so as to be connected to the suspending member 222, thereby simplifying its assembly process. The middle portion of the suspending member 222 is bent downward to restrict the hanging position of the connecting member 232 to be immovable, thereby enabling to maintain uniformly the gap between the sleeve 211 and sucking member 240.

Moreover, the fixing ends 223 are formed at the upper end of the sleeve 211 so as to make both ends of the suspending member 222 be fixed thereto, making it possible to stably and safely fix the suspending member 222 to the sleeve 211.

FIG. 6 illustrates a cross-sectional view of an oil supply apparatus for a hermetic compressor according to a further embodiment of the present invention and FIG. 7 illustrates a disassembled top view of a suspending member and a sleeve in FIG. 6.

Referring to FIG. 6 and FIG. 7, a support means 350 of an oil supply apparatus for a hermetic compressor according to a further embodiment of the present invention comprises a suspending member 322 connected to an upper part of a sleeve 311 in a radial direction, a connecting member 332 connected to a center of the connecting member 322 in a vertical direction, and a sliding portion formed between the connecting member 332 and a sucking member 340 so that the supported sucking member 340 is slidable.

The sliding portion comprises a hinge ball 333 built in one body with an end of the connecting member 322 and a spherical recess 343 formed at top face of a through hole 341 of the sucking member 340 so that the hinge ball 333 is slidable after fit in.

The suspending member 322 is shaped like a bar so that both ends of the suspending member 322 are connected to an upper end of the sleeve 311. And, the connecting member 332 is connected to a center of the suspending member 322 so as to be hung in a vertical direction. Therefore, the hinge ball 333 enables to rotate with the same concentricity of the revolving center of the sleeve 311.

Both ends of the suspending member 322 are pushed in the sleeve 311 so as to be fixed. Namely, the suspending member 322 is installed at the sleeve 322 by being pushed in as the resiliency of the suspending member 322 is slightly changed. In order to couple the connecting member 332 with the center of the suspending member 322, the suspending member 322 extends downward obliquely at a predetermined angle from both ends to predetermined lengths so as to form a horizontal portion in the middle. The horizontal portion of the suspending member 322 is formed to a predetermined length so as to be coupled with the connecting member 332.

Therefore, a hanging position of the connecting member 332 is restricted, left the connecting member 332 immovable on the suspending member 322.

The connecting member 332 has a hook shape such that it can be hung on the suspending member 322 in an outer length direction of the sucking member 340 by passing through an upper center of the sucking member 340. And, the connecting member 332 is connected integrally with the hinge ball 323 installed inside the sucking member 340 in an inner length direction of the sucking member 340. Explanation for the same components of the previous embodiment of the present invention is skipped in this description.

Operation and effect of the above-explained oil supply apparatus for the hermetic compressor according to another embodiment of the present invention are as follows.

The connecting member 332 is hung on the horizontal portion of the suspending member 322 so as to be connected to the suspending member 322, thereby simplifying its assembly process. Both side portions of the suspending member 222 are bent downward to restrict the hanging position of the connecting member 332 so that the connecting member 332 is immovable, with a result that a uniform gap is maintained between the sleeve 311 and sucking member 340.

Moreover, the suspending member 322 is installed directly at the sleeve 311 by being pushed in, thereby enabling to fix the suspending member 322 to the sleeve 311 with ease.

As mentioned in detail in the above description of the hermetic compressor according to the present invention, the support shaft and hinge ball supporting the sucking member are connected to the center of the suspending member fixed to the sleeve, and

the anti-rotating member is installed at the lower part of the sucking member so as to suppress the revolving tendency of the sucking member by generating a resistance against the oil.

Therefore, the present invention enables to maintain uniformly the gap between the inner circumference of the sleeve and the outer circumference of the sucking member, thereby improving the reliability of the oil supply.

Moreover, in the hermetic compressor according to the present invention, the connecting member is hung on the center of the suspending member and associated with the suspending member, making it possible to simplify the assembly process. Moreover, the bent portion is formed at the central portion of the suspending member and thus the connecting member hung thereon is immovable on the suspending member. Therefore, the present invention enables to keep a uniform gap between the inner circumference of the sleeve and the outer circumference of the sucking member, thereby improving the reliability of the oil supply.

Furthermore, in the hermetic compressor according to the present invention, the sleeve and sucking member construct a single assembly. Therefore, the present invention installs the single assembly at the crankshaft directly, thereby improving the production efficiency in the assembling procedure of compressor.

The forgoing embodiments are merely exemplary and shall be construed as limiting the present invention. The present teachings can be readily applied to other types of apparatuses. The description of the present invention is intended to be illustrative, while not to limit the scope of the claims. Many alternatives, modifications, and variations of the present invention will be apparent to those skilled in the art.

What is claimed is:

1. An oil supply apparatus for a hermetic compressor, comprising:
a crankshaft coupled with a motor so as to revolve together and having an oil flow path inside;
a sleeve connected to a lower part of the crankshaft so as to revolve together with the crankshaft in one body;
a sucking member arranged to maintain a uniform space with an inner circumference face of the sleeve so as to carry out a suction of an oil; and
a support means slidably connected between the sleeve and sucking member so that the sucking member can be a stationary state in the sleeve.

2. The oil supply apparatus of claim 1, further comprises an anti-rotating member installed at a lower part of the sucking member so as to avoid rotation of the sucking member by a generated resistance force due to high viscosity of lubricating oil.

3. The oil supply apparatus of claim 1, wherein the sleeve is cylindrical so that an upper outer circumference face of the sleeve is pushed in and fixed to a lower side of the crankshaft.

4. The oil supply apparatus of claim 1, wherein the sucking member is arranged inside the sleeve so as to leave a uniform space from each other, and a spiral oil flow path is formed at an outer circumference face of the sucking member so as to suck in the lubricating oil, as well as a through hole is formed in a length direction of the sucking member.

5. The oil supply apparatus of claim 1, the support means comprising:
a suspending member connected to both sides of up upper portion of the sleeve in a radial direction;
a connecting member downward vertically connected to a center of the suspending member; and
a sliding portion between the connecting and sucking members so as support sliding of the sucking member.

6. The oil supply apparatus of claim 5, the sliding portion comprising:
a hinge ball built in one body with an end of the connecting means; and
a spherical recess at the through hole of the sucking member so that the hinge ball so that the hinge ball is slidable after it is mounted in.

7. The oil supply apparatus of claim 5, wherein the suspending member exhibits a bar shape having a predetermined length and both ends of the suspending member are fixed to fixing recesses through an upper end of the sleeve.

8. The oil supply apparatus of claim 2, the anti-rotating member comprising:
a cylindrical fixed part inserted into the through hole of the sucking member so as to

be fixed; and
a plurality of blades in an inner circumferential direction of the fixed part so as to generate a resistance force against a viscosity of the oil fully filling a lower side of a body of the oil supply apparatus.

9. The oil supply apparatus of claim 5, wherein both ends of the suspending member which are fit in fixing recesses at both sides of the upper portion of the sleeve as well as a middle portion of the suspending member are bent so that a connecting position of the connecting member is precisely maintainable.

10. The oil supply apparatus of claim 5, wherein obliquely extends from a middle portion to both ends and is made of a resilient material having a predetermined resiliency exerting in a stretching-out direction on both of the ends of the suspending member.

Abstract

An oil supply apparatus for a hermetic compressor comprises: a crankshaft coupled with a motor so as to revolve together and having an oil flow path inside, a sleeve connected to a lower part of the crankshaft so as to integrally revolve together with the crankshaft, a sucking member arranged to maintain a uniform space with an inner circumference face of the sleeve so as to carry out a suction of an oil, and a support means for supporting the sucking member to slide, the support means connected between the sleeve and sucking member so as to maintain a stationary state. The sucking member is supported so as not to revolve at the revolving center of the sleeve, thereby maintaining a uniform gap between the inner circumference face of the sleeve and the sucking member regardless of the vibration from the actuating compressor so as to improve oil supply reliance.